

# Work Order ID 83759

**\*83759\***

Page 1

April-25-12 10:07:56 AM

Item ID: D205-634-041

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 25/04/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: ML5

Date: 12/04/25

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D2580-041

(DEO) Rev.E

100

0.00

**\*100\***

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 GHG005

*NA*

110

0.00

**\*110\***

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

*>*

*DP12-430*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 2

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Item ID: D205-634-041

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**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Item Name: Replacement Skidtube

Stop

**\*NS2\***

Start Date: 25/04/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
<b>*120*</b>									
Skidtubes	Memo	0.00							
Skidtubes	1- Deburr ends and remove bending marks								
	2- Prepare tube for welding as per QSI 004								
130	QC5- Inspect part completeness to step on W/O	0.00							
<b>*130*</b>									
QC	Memo	0.00							
Quality Control									

CF 12-5-2

DP 12-5-2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 3

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Item Name: Replacement Skidtube

Stop **\*NS2\***

Start Date: 25/04/2012 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0:00							

**\*140\***

Skidtubes

Skidtubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI004  
A/R Aluminum Rod *M120854*

*BE 12/05/02*

2-Grind welds on step as per Dwg D2580

~~3~~-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimention.

~~4~~-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web. Debur

~~5~~-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

~~6~~-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

*CF 12-5-3*

150

QC10- Inspect visual per QSI004- ground welds 0.00

**\*150\***

QC

Memo

0.00

*8/7/05/02*

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 <b>*160*</b> QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00							
		8/26/07							
170 <b>*170*</b> HandFinish Hand Finishing	Pressure Wash per QSI005 4.3  Memo	0.00 0.00							
	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.								
									14/05/07
180 <b>*180*</b> Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum  Memo	0.00 0.00							
	START TIME: OVEN TEMPERATURE: FINISH TIME:	7:45 320 °F 8:15							
									12/05/08

M121134

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 5

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Start Date: 25/04/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC3- Inspect Part Finish	0.00							
<b>*190*</b>									
QC	Memo	0.00							
Quality Control									

*Handwritten notes:* 1x, 6, 11/05/12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 6

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Stop **\*NS2\***

Start Date: 25/04/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		0.00							
<b>*200*</b>									
HandFinish									
Hand Finishing	<p><b>Memo</b></p> <p>1-Install inserts &amp; wearplates &amp; Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 <u>121221</u> Sikaflex expire date: <u>12/01</u></p> <p>2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580</p> <p>3-Inspect for foreign object per QSI 024</p> <p>4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step &amp; Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 <u>121221</u> Sikaflex expire date: <u>12/01</u></p> <p>5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: <u>121505</u></p>	0.00							

1 6 28 12/05/09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 7

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**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Item Name: Replacement Skidtube

Stop **\*NS2\***

Start Date: 25/04/2012 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 11/05/2012 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	QC5- Inspect part completeness to step on W/O	0.00							
<b>*210*</b>									
QC									
Quality Control									
	<b>Memo</b>	0.00							
	Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024								
220		0.00							
<b>*220*</b>	Packaging								
Packaging									
Packaging									
	<b>Memo</b>	0.00							
	Identify and pack for shipping as per PPPD205-634-041								
	Location:								
	PPP Rev: <u>PPP 83760</u>								
230	QC21- Final Inspection - Work Order Release	0.00							
<b>*230*</b>									
QC									
Quality Control									
	<b>Memo</b>	0.00							

440/11 C

12/5/14

MF

12-05-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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# Picklist Print

April-25-12 10:08:00 AM

Page 1  
6

Work Order ID: 83759

\*83759\*

Parent Item: D205-634-041

\*D205-634-041\*

Parent Item Name: Replacement Skidtube

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30  
KJ IPP Rev P 10.02.19  
per PAR09-043 EC verified by:DD  
IPP Rev. O 06.02.28 Added paperwork EC  
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q  
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS  
PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D4202-1 *D4202-1* Spacer		Manufactured	No			140	Each	242.0000	20	20			
									**	20		CF 12.5-2	

Location	Loc Qty	Loc Code
LG	5	
77727	5	
LG002	237	
78806	6	
79810	231	

D2580-1 *D2580-1* 205 Skidtube bent detail		Manufactured	No			110	Each	8.0000	1	1			
									**			DP 12-4-30	

Location	Loc Qty	Loc Code
LG	8	
76570	2	
77679	2	
81469	2	
81473	2	

D2576-3 *D2576-3* Step (maching detail)		Manufactured	No			140	Each	33.0000	1	1			
									**			86 12-05-02	

Location	Loc Qty	Loc Code
LG	33	
74136	33	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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April-25-12 10:08:00 AM

Page 2

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Parent Item: D205-634-041

**\*D205-634-041\***

Parent Item Name: Replacement Skidtube

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200

Each

37.0000

1

1

**\*D2855\***

Cap

\*\*

1 (SP) 12/05/09.

Location

Loc Qty

Loc Code

FP002

37

65519

2

73347 ✓

29

75074

6

AN3-5A

Purchased

No

200

Each

1,472.000

2

2

**\*AN3-5A\***

Bolt

\*\*

2 (SP) 12/05/09.

Location

Loc Qty

Loc Code

ST350

1472

115371

46

117423

124

118626 ✓

141

119355

200

120187

500

121185

461

AN960JD10L

\*NAS1149D03321 ✓

Purchased

No

200

Each

0.0000

2

2

**\*AN960JD10L \***

Washer

\*\*

2 (SP) 12/05/09.

120644 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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April-25-12 10:08:00 AM

Page 3

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Parent Item Name: Replacement Skidtube

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

Purchased

No

200

Each

2,212.000

50

50

**\*AI S7-1032-130\***

Insert

\*\*

50 (2P) 12/05/09

Location

Loc Qty

Loc Code

ST280

127

117717

27

118966

22

119775

78

ST282

120837 ✓

2085

119530

73

120181

12

121444

2000



AN3C4A

Purchased

No

200

Each

2,192.000

50

50

**\*AN3C4A\***

BOLT

\*\*

50 (2P) 12/05/09

Location

Loc Qty

Loc Code

ST350

2192

120187 ✓

1126

120521

28

120769

38

121205

1000

AN960C10L

\* NAS1149C0332 ✓ Purchased

No

200

Each

0.0000

50

50

**\*AN960C10I \***

washer

D3566-13

Manufactured

No

200

Each

14.0000

1

1

**\*D3566-13\***

Gasket

\*\*

50 (2P) 12/05/09

\*\*

1 (2P) 12/05/09

Location

Loc Qty

Loc Code

FP002

14

76947 ✓

14

April-25-12 10:08:00 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
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Page 4

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\*83759\*

\*D205-634-041\*

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

D3566-5

Manufactured No

200

Each

32.0000

1

1

\*D3566-5\*

Gasket

\*\*

1 (28) 12/05/09

## Location

## Loc Qty

## Loc Code

FP

16

82275

16

FP002

16

80374 ✓

10

82274

6

D3566-1

Manufactured No

200

Each

33.0000

2

2

\*D3566-1\*

Gasket

\*\*

2 (28) 12/05/09

## Location

## Loc Qty

## Loc Code

FP

-10

81619 ✓

22

FP002

43

68924

2

80919

9

D3564-11

Manufactured No

200

Each

18.0000

1

1

\*D3564-11\*

Wearshoe

\*\*

1 (28) 12/05/09

## Location

## Loc Qty

## Loc Code

FG

4

77056

4

FP001

14

78871

2

80341 ✓

12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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April-25-12 10:08:00 AM

Page 5

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\*D205-634-041\*

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

D3564-13

Manufactured No

200

Each

34.0000

1

1

\*D3564-13\*

Wearshoe

\*\*

1 (SP) 12/05/09

Location

Loc Qty

Loc Code

FP001

1

71594

1

FP002

33

80342 ✓

11

82249

22

D3564-9

Manufactured No

200

Each

31.0000

1

1

\*D3564-9\*

Wearshoe

\*\*

1 (SP) 12/05/09

Location

Loc Qty

Loc Code

FG

4

76950

4

FP001

27

67590

4

69943

1

82255 ✓

22

D3564-5

Manufactured No

200

Each

24.0000

1

1

\*D3564-5\*

Wearshoe

\*\*

1 (SP) 12/05/09

Location

Loc Qty

Loc Code

FG

2

34806

2

FP001

22

73330

1

77609

4

80343

1

82254 ✓

16

April-25-12 10:08:00 AM

Shop Packet Print

Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

April-25-12 10:08:00 AM

Page 6

Work Order ID: 83759

**\*83759\***

Parent Item: D205-634-041

**\*D205-634-041\***

Parent Item Name: Replacement Skidtube

Start Date: 25/04/2012

Required Date: 11/05/2012

Start Qty: 1.00

Required Qty: 1.00

D2594-3

Manufactured No

200

Each

2,642.000

16

16

**\*D2594-3\***

O-Ring, 205 Skidtube

\*\*

16

SP

12/05/09

Location

Loc Qty

Loc Code

FP001

2642

65518

41

79496

984

79573

50

79755 ✓

1567

D2594-1

Manufactured No

200

Each

535.0000

16

16

**\*D2594-1\***

Plug, 205 Skidtube

\*\*

16

SP

12/05/09

Location

Loc Qty

Loc Code

FP001

322

73401

30

74442 ✓

34

79495

258

FP-A

213

73401

0

78590

213

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

LIST OF MATERIALS					PART NUMBER	DESCRIPTION
ITEM	QTY -041	QTY -045	QTY -047			
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1		D2500-1-190	EXTRUSION
5			16		D2570	BUSHING
6	1	1	1		D2576-3	STEP
7	20	24	25		D2579	SPACER
8	16	16	8		D2594-1	PLUG
9	16	16	8		D2594-3	O-RING
10	1	1	1		D2596	205 WEB
11	1	1	1		D2855	AFT CAP
12	1	1			D3564-5	WEARSHOE
13	1	1			D3564-9	WEARSHOE
14	1	1			D3564-11	WEARSHOE
15	1	1			D3564-13	WEARSHOE
16	2	2			D3566-1	GASKET
17	1	1			D3566-5	GASKET
18	1	1			D3566-13	GASKET
19			1		D4406-041	WEARPLATE ASSEMBLY
20			1		D4406-043	WEARPLATE ASSEMBLY
21	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
22	50	50			AN3C4A	BOLT
23	2	2	2		AN3-5A	BOLT
24			8		AN4-45A	BOLT
25	50	50			NAS1149C0332R	WASHER (AN960C10L)
26	2	2	2		NAS1149D0332J	WASHER (AN960JD10L)
27			8		MS21042-4	NUT (OR MS21042L4)

# GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3 POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 34.5 lbs  
D2580-045 = 34.5 lbs  
D2580-047 = 37.7 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DEO ATTACHED

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2011-08-29  
WJ

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT

WITHOUT NOTICE  
WORK ORDER

NO. 83759 MLJ  
12/04/25

E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TO2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 1 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	10	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

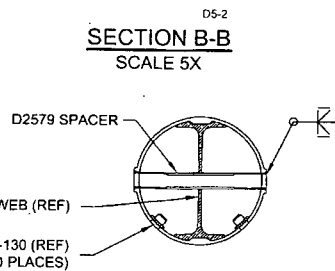
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

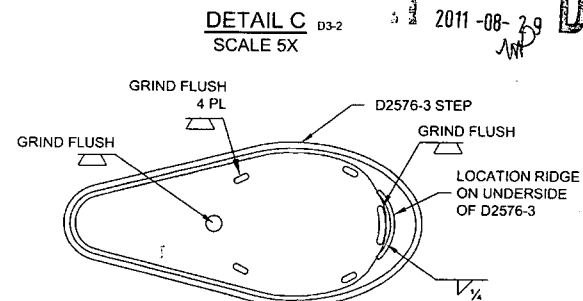
**NOTE:** Date & initial all entries



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2011-08-29  
JW



1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP



DESIGN	<del>4</del>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA  DRAWING NO. D2580  TITLE 205 SKIDTUBE ASSEMBLY  COPYRIGHT © 1986 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATELY OWNED AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	REV. E
DRAWN	RF		SHEET 2 OF 2
CHECKED	<del>RF</del>		
MFG. APPR.	<del>RF</del>		
APPROVED	<del>RF</del>		
DE APPR.	<del>RF</del>		
DATE	11.06.21		SCALE NT

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

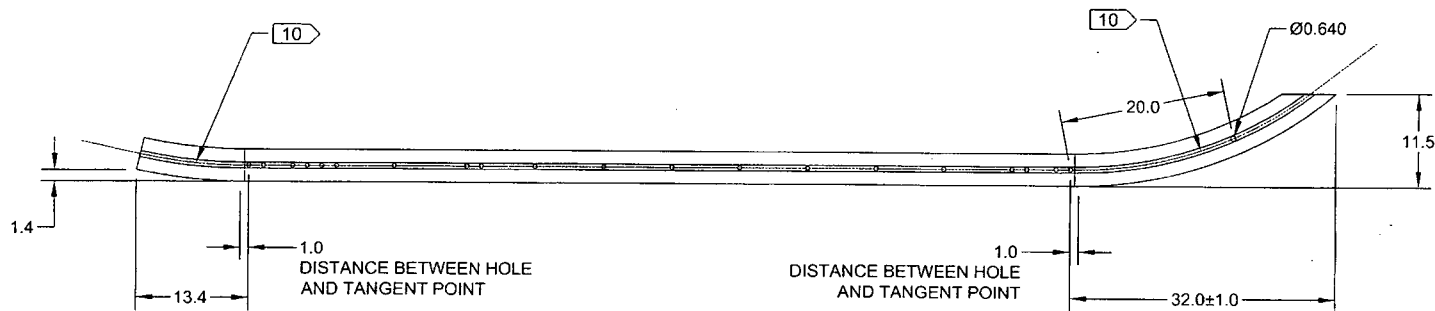
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

83759



D2580-1 BENT TUBE  
(MAKE FROM D2580-101 TUBE)

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2011-08-28  
JW

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D2580	SHEET 3 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

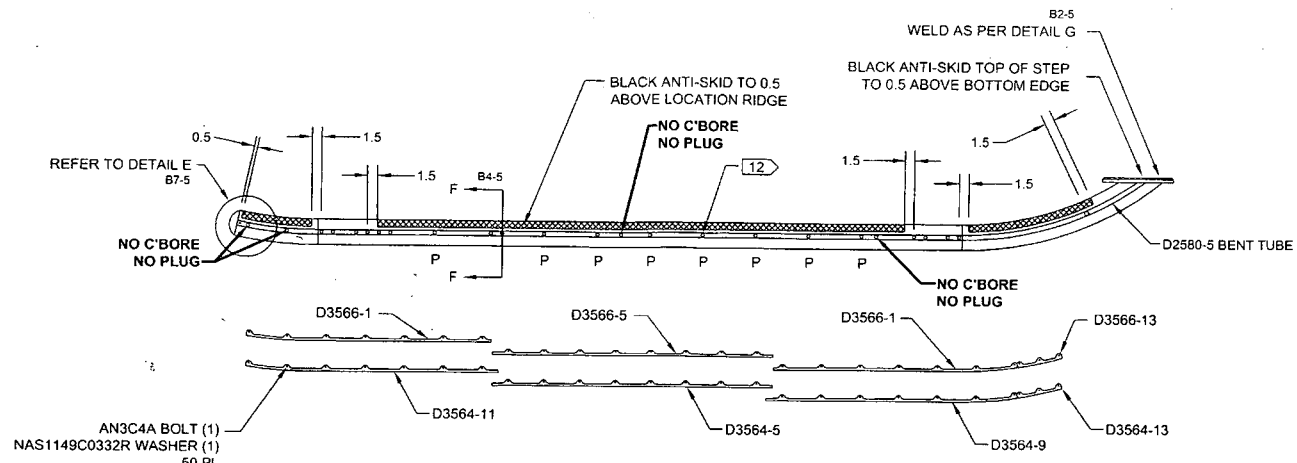
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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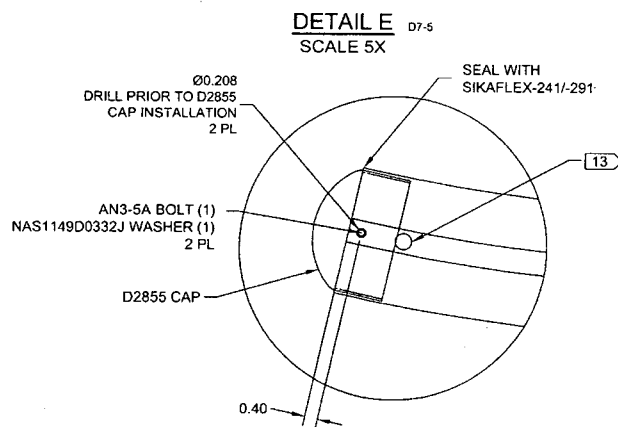
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

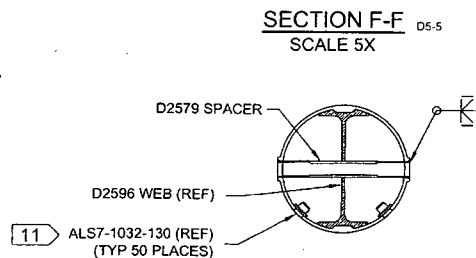




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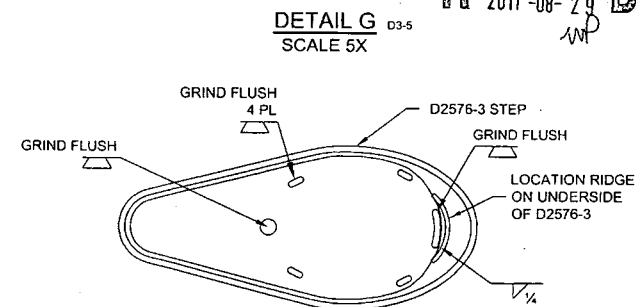


**DETAIL E SCALE 5X**



**SECTION F-F SCALE 5X**

- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (24 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP



**DETAIL G SCALE 5X**

DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 4 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	10	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

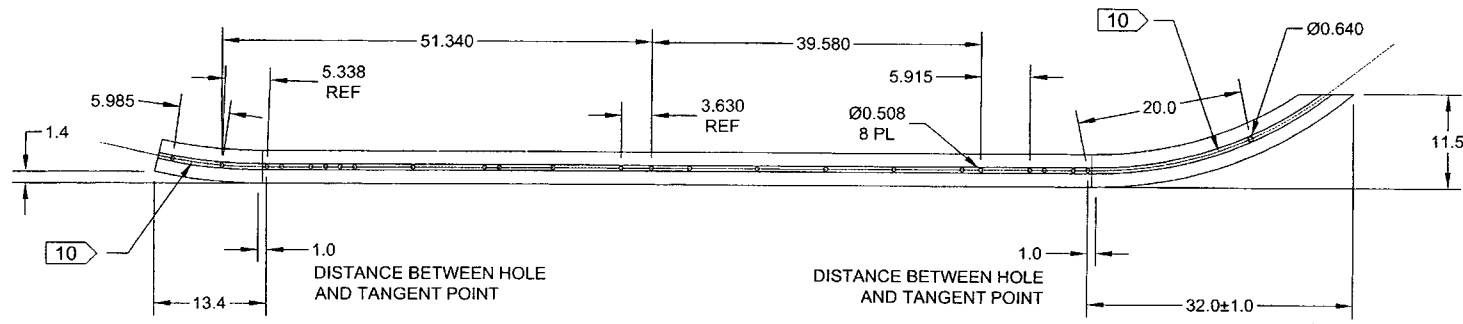
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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

03759



D2580-5 BENT TUBE  
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED  
RELEASED  
2011-08-29

DESIGN	#	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 5 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	#	205 SKIDTUBE ASSEMBLY	NTS
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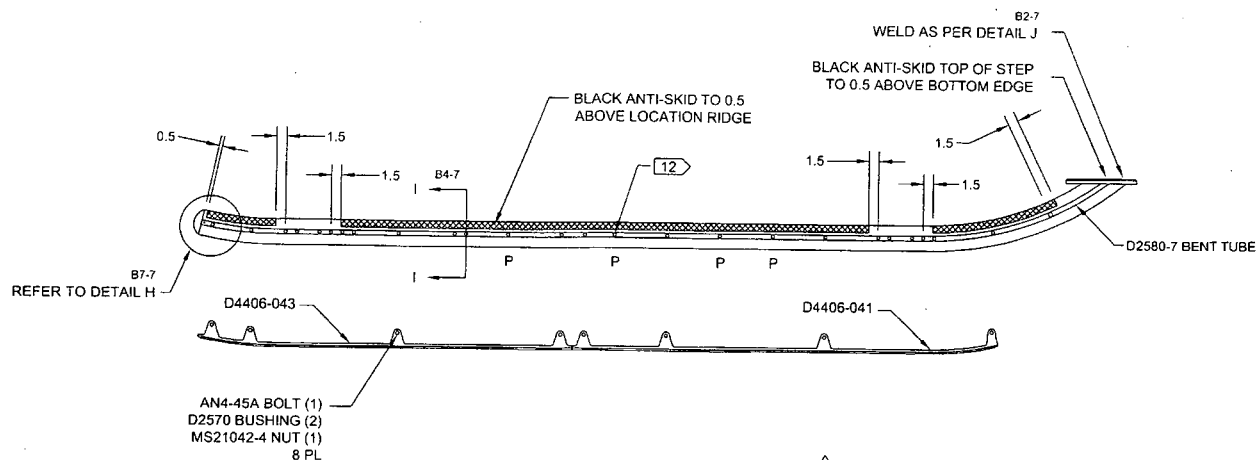
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

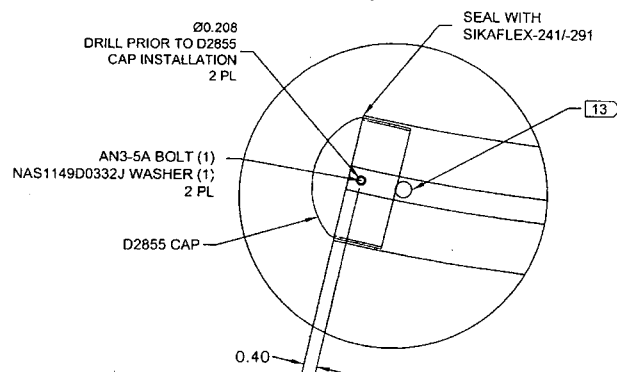
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

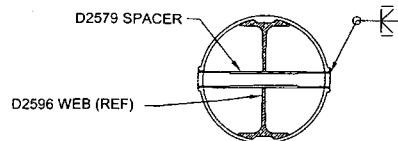


D2580-047 ASSEMBLY DETAIL E

DETAIL H C6-7  
SCALE 5X



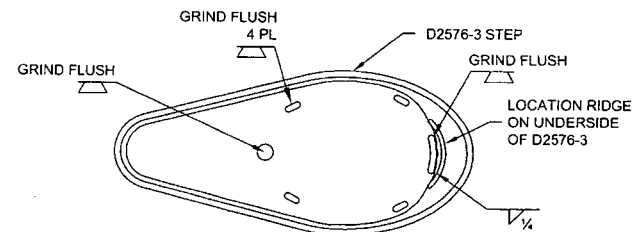
SECTION I-I D5-7  
SCALE 5X



AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (25 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DETAIL J D3-7  
SCALE 5X



DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	140	DRAWING NO.	REV. E
MFG. APPR.	140	D2580	SHEET 6 OF 8
APPROVED	140	TITLE	SCALE
DE APPR.	140	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

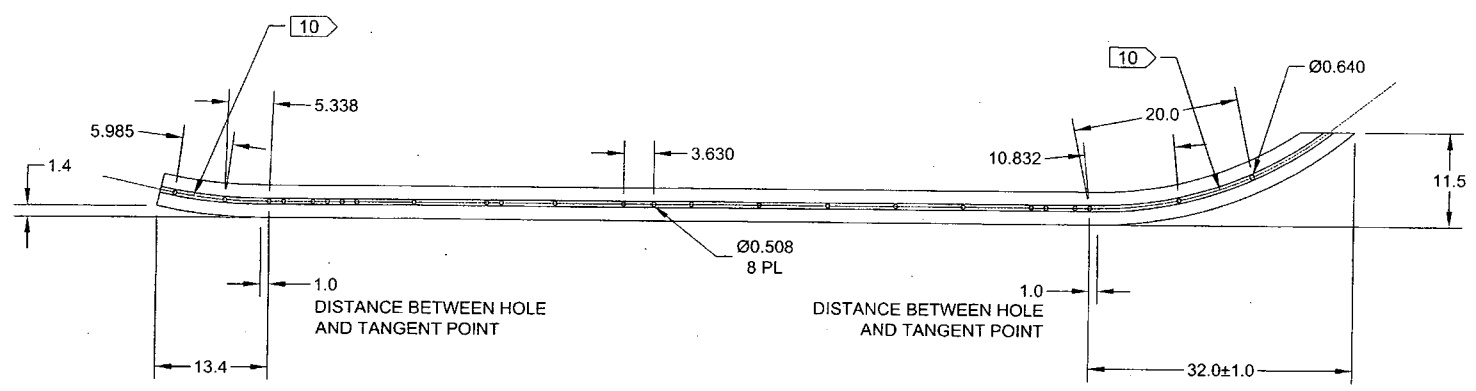
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

83759



D2580-7 BENT TUBE  
(MAKE FROM D2580-101 TUBE)



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2011-08-29  
ND

DESIGN	<i>RF</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>RF</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>RF</i>	D2580	SHEET 7 OF 8
APPROVED	<i>RF</i>	TITLE	SCALE
DE APPR.	<i>RF</i>	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

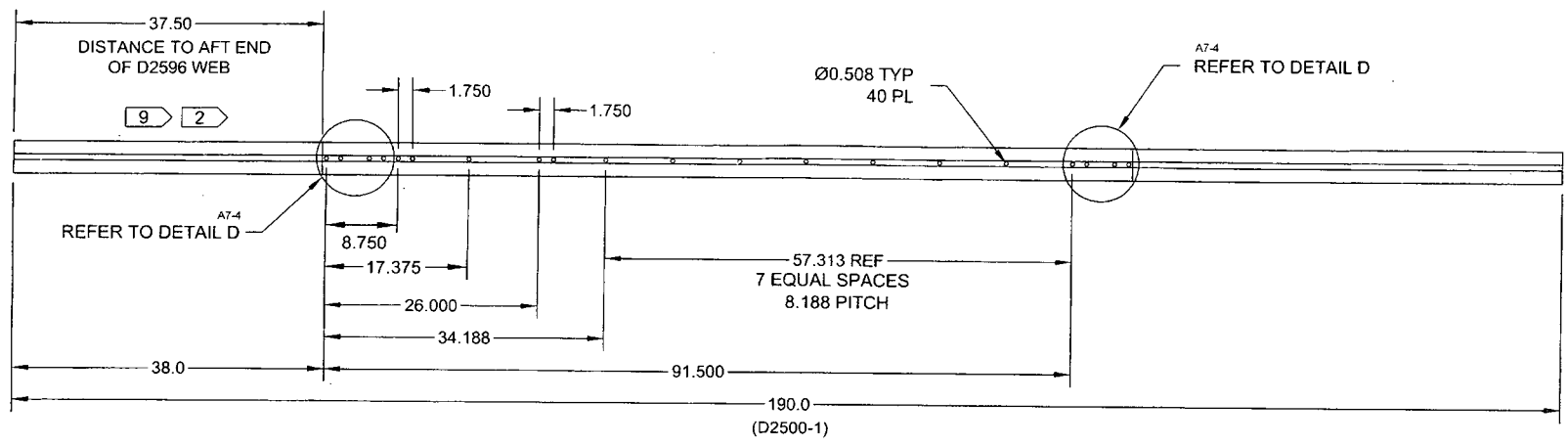
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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

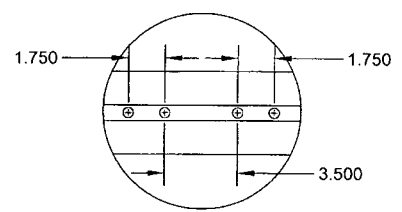
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83759



D2580-101 TUBE



DETAIL D D3-4  
C7-4  
SCALE 5X

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R 2011-08-29

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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	MP	DRAWING NO.	REV. E
MFG. APPR.	SS	D2580	SHEET 8 OF 8
APPROVED	MP	TITLE	SCALE
DE APPR.	#	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. E	<b>DART AEROSPACE LTD ENGINEERING ORDER</b>	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>EC</i>	APPROVED <i>[Signature]</i>	DE APPR. <i>[Signature]</i>		
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13		

**PURPOSE:**

CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

**CHANGE:**

PARTS LIST IS AMENDED AS FOLLOWS:

WAS

QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045	-047		
20	24	25	D2579	CROSS BOLT SPACER

IS

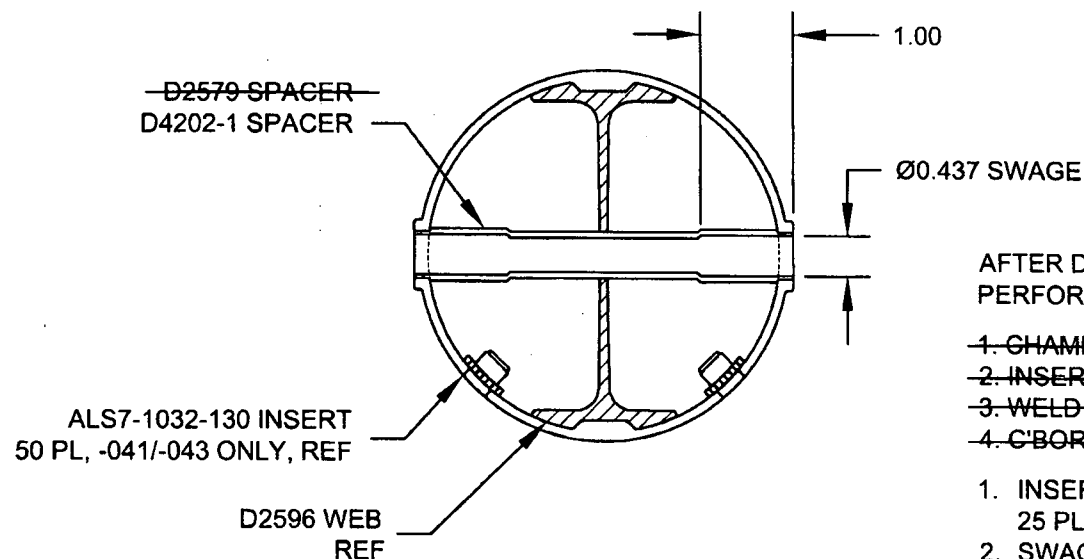
	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

**\* FOR -045 SKIDTUBE ONLY:**

WELD 4X D2579 SPACERS PER DWG  
IN LOCATIONS MARKED "NO C'BORE".  
REF SHEET 4 OF DWG.

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS  
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:

**RELEASED**  
2011-12-14 *[Signature]*



AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

- ~~1. CHAMFER HOLE 0.060 X 45°~~
- ~~2. INSERT D2579 SPACER (20 PLACES)~~
- ~~3. WELD INTO PLACE AND GRIND FLUSH~~
- ~~4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~
1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries